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PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**IN THE APPLICATION OF:  
Cronin et al.

Confirmation No. 2991

CASE NO.: CH2883 US PCT

APPLICATION NO.: 10/539,718

GROUP ART UNIT: 1793

FILED: JULY 20, 2005

EXAMINER: NGUYEN, NGOC YEN M

FOR: PURIFICATION OF TITANIUM TETRACHLORIDE

**REPLY BRIEF UNDER 37 CFR § 41.41(a)(1)**Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In accordance with the practice under 37 CFR 41.41(a)(1), the following is a reply brief within two months from the mailing date of the Examiner's Answer. This reply brief is accompanied by a Request for Oral Hearing.

Please charge any necessary fees associated with the Reply Brief and Request for Oral Hearing, to Deposit Account No. 04-1928 (E. I. du Pont de Nemours and Company). The Commissioner is hereby authorized to charge any additional fees which may be required or credit any overpayment to Deposit Account No. 04-1928.

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**(B) STATUS OF CLAIMS**

The status of claims is substantially as stated in the Appeal Brief, except that an Amendment After Final submitted on April 1, 2008 was denied entry in an Advisory Action mailed on April 11, 2008.

The Status of the claims as stated in the Appeal Brief is reproduced below for convenience.

Claims 1-11 were in the application as filed. Claims 1-11 were rejected by Office Action of March 24, 2006. Claims 1-11 were cancelled. Claims 12-19 were presented in an Amendment on November 6, 2006. The claims were entered by the Examiner. Claims 12-19 were finally rejected by Office Action of December 31, 2007.

Claims 12-19 are on appeal. All claims are rejected. Claims on appeal are listed in the Appendix hereto.

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**(C) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

Claims 12-19 were rejected under 35 U.S.C. §103(a) as being obvious over the preamble to Jepson claim 12 as admitted prior art ("the preamble") or Great Britain Patent No. 744,074 (the '074 publication), either one, in view of U.S. Published Patent Application No. 2001/0016182 A1 ("the Cronin et al. publication"). Appellant wishes to point out that the statement of this first grounds of rejection in the Appeal Brief inadvertently omitted reference to the '074 publication, but the '074 publication was addressed in the Argument section starting on page 10.

Claims 1-11 were rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 2,600,881 of Kay et al. ("the '881 patent") in view of U.S. Patent No. 2,592,021 of Frey et al. ("the '021 patent") and the Cronin et al. publication.

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**(D) ARGUMENT**

**Rejection under 35 U.S.C. §103(a) in view of the preamble to Jepson claim 12 as admitted prior art ("the preamble") or Great Britain Patent No. 744,074 ("the '074 publication"), either one in view of Cronin et al. U.S. Published Patent Application No. 2001/0016182 ("the Cronin et al. publication").**

In responding to the appellant's brief regarding the combination of what is held to be admitted prior art or the '074 publication in view of Cronin, the Answer concludes:

"Thus, whether or not it is known that organic oil would have removed aluminum, it still would have been obvious to one skill in the art to have monitored the amount of titanium oxychloride present in the discharge stream and thereby adjusting the rate of addition of the aluminum chloride passivating agent to form an essentially non-corrosive aluminum containing compound and to maintain the concentration of oxychloride at an aimpoint". See page 12 of the Answer.

This conclusion assumes that one of ordinary skill in the art would equate the ingredients of a crude titanium tetrachloride discharge treated with aluminum passivating agents of the kind disclosed in the Cronin et al. publication (water, water solutions, water containing mixtures and carboxylic acids, see [0024] of Cronin et al.) with the ingredients of a crude titanium tetrachloride discharge treated with the organic oil vanadium passivating agent. However, no prior art reference has been pointed to which teaches or suggests that the organic oil vanadium passivated crude titanium tetrachloride chlorinator discharge relates to the aluminum passivated crude titanium tetrachloride, particularly with respect to the existence of titanium oxychloride. In this regard, all one would be taught from the Cronin et al. publication is monitoring aluminum passivated crude titanium tetrachloride for titanium oxychloride.

It is submitted that one of ordinary skill in the art would have to make the assumption that a disclosure on how to control the passivation of aluminum chloride present in a chlorinator discharge stream in a process for making titanium tetrachloride would be applicable.

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One of ordinary skill in the art would then have to somehow recognize the presence of titanium oxychloride (knowing that this would indicate the absence of aluminum chlorides), or the absence of aluminum chlorides in the vanadium passivated discharge. However, nothing in the Answer provides a reason for such recognition or knowledge. The reason must be identified whether it is documentary prior art, general knowledge in the art or common sense for a proper obviousness rejection.

The Answer concludes that it would have been obvious to filter solids before analyzing the titanium tetrachloride for titanium oxychloride and points to the Cronin et al. publication which teaches measuring titanium oxychloride following inline filtering or screening out of interfering particles. However, appellant maintains that a reason for the knowledge or recognition of a need to filter solids and analyze for titanium oxychloride has not been provided.

The rejection of claim 12 and the claims dependent thereon is in error and should be reversed.

**Rejection under 35 U.S.C. §103(a) in view of U.S. Patent No. 2,600,881 of Kay et al. ("the '881 patent") in view of U.S. Patent No. 2,592,021 of Frey et al. ("the '021 patent") and the Cronin et al. publication**

In responding to appellant's brief regarding the combination of the '881 patent in view of the '021 patent and the Cronin et al. publication, the Answer concludes that:

"...it would have been obvious to one of ordinary skill in the art to have monitored the amount of Al impurity in the titanium tetrachloride before and after the Al passivating step in order to add just a sufficient amount of water to remove the Al impurity with the amount of titanium oxychloride (as an indicator that all Al impurity has been passivated) maintained at the desired aim point as suggested by Cronin '182." (see the Answer at page 16).

In this passage, the same assumption addressed in regard to the first grounds for rejection is made; that is, that one of ordinary skill in the art would equate the ingredients of a crude titanium tetrachloride discharge treated with aluminum passivating agents of the kind disclosed in the Cronin et al. publication (water, water solutions, water containing mixtures and carboxylic acids, see [0024] of Cronin et al.) with the ingredients of a crude titanium tetrachloride discharge treated with the

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organic oil vanadium passivating agent. However, for the above described reasons, appellant maintains that in the absence of a reason why the person of ordinary skill in the art would have known or recognized the presence of titanium oxychloride (knowing that this would indicate the absence of aluminum chlorides), or the absence of aluminum chlorides in the vanadium passivated discharge the obviousness rejection is in error and should be reversed.

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**CONCLUSION**

For the reasons set forth in the Appeal Brief and in this Reply Brief,  
it is submitted that the Examiner's rejections are improper and should be  
reversed, which action is earnestly solicited.



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